



**Committee of Experts on the Transport of Dangerous Goods
and on the Globally Harmonized System of Classification
and Labelling of Chemicals****Sub-Committee of Experts on the Transport of Dangerous Goods****Forty-ninth session**

Geneva, 27 June – 6 July 2016

Item 6 (c) of the provisional agenda

**Miscellaneous proposals for amendments to the Model Regulations
on the Transport of Dangerous Goods: packagings****Water temperature during internal pressure (hydraulic) test
with plastics packagings, composite packagings (plastics
receptacles), plastics IBCs and composite IBCs (plastic inner
receptacles)****Transmitted by the expert from Germany¹**

1. As already described in document ST/SG/AC.1/C.3/2015/15 and informal document INF.13 (48th session) there are no rules in the Model Regulations regarding the internal (hydraulic) pressure which prescribe that the water temperature must be kept within a certain range during the test. Nevertheless, there are several investigations which show that temperature has a big influence on the mechanical behaviour of plastics material.

2. The results of all investigations (see informal document INF.13 (48th session)) concerning the water temperature during internal pressure tests show clearly that a higher temperature leads to an earlier failure of the plastics packaging. Furthermore tests with different water temperatures applied to one design type can produce different test results (pass or failure). To make the test results more comparable the German expert proposes introducing a lower water temperature limit of 12 °C when testing plastics packagings, composite packagings (plastics receptacles), plastics IBCs and composite IBCs (plastic inner receptacles). Water with a temperature above 12 °C would be permitted but not water with a temperature below 12°C. It can be assumed that most of the test laboratories are

¹ In accordance with the programme of work of the Sub-Committee for 2015–2016 approved by the Committee at its seventh session (see ST/SG/AC.10/C.3/92, paragraph 95 and ST/SG/AC.10/42, para. 15).

using water with temperatures exceeding 12 °C due to the normal conditions in the test labs.

3. At the last sessions, opinions on the subject remained divided. Some delegations considered that the measures proposed would have no significant impact on improving safety and favoured retaining the current provisions. Other delegations were of the opinion that more harmonized requirements would improve the comparability of the test results..

4. The expert from Germany is still of the opinion that there is a need for an amendment. The current provisions on the level on the internal test pressure without connection to the temperature are technically incomplete, and thus provide a limited informative value on the safety level of the packages. Different practices have developed which cause competitive disadvantages and are contrary to the intention to have harmonized provisions as a basis for the worldwide acceptance of UN approved packagings. The current provisions allow cooling down the water in plastics packagings, composite packagings (plastics receptacles), plastics IBCs and composite IBCs (plastic inner receptacles) for the internal pressure (hydraulic) test without any limitation. Thus, the insertion of a requirement for a minimum temperature of 12 °C is still considered as an appropriate solution. The choice of 12°C is justified by the existing practice and it can be assumed that most of the existing packagings are capable to meet this test level.

5. The expert of Germany also reviewed the possibility to use a correction factor, taking into account the views of several experts which were in favour of such an option. The current provisions do not prohibit the use of correction factors as long as they are within the limits for the internal pressure set by 6.1.5.5.4 and 6.5.6.8.4. The correction factors as contained in ISO 16495:2013 also refer to internal pressure values below the limits in 6.1.5.5.4 and 6.5.6.8.4. Consequentially, the insertion of the same tables with correction factors or a reference to ISO 16495:2013 would require the deletion of the existing minimum internal pressure values as a consequential amendment. Such a fundamental change should not be done on the basis of the correction factors as contained in ISO 16495:2013 as they were not developed for the purpose of packaging testing, but for testing plastics pipes. These investigations have been made over 20 years ago and base upon tests of pipes made of only one polymer. Thus, such an option is not any longer pursued at this stage.

6. The new proposal below also contains a grandfather clause for existing packaging types to avoid that existing approvals are affected and have to be renewed.

Proposal

7. Amend the text of 6.1.5.5.3 to read as follows (new added text in bold):

“Special preparation of packagings for testing: either vented closures shall be replaced by similar non-vented closures or the vent shall be sealed. Plastics packagings and composite packagings (plastics receptacles) shall be filled with water at room temperature. The water temperature shall not be below 12 °C and shall be measured and documented before testing.”

8. Amend the text of 6.5.6.8.2 to read as follows:

“Preparation of the IBC for test

The test shall be carried out before the fitting of any thermal insulation equipment. Pressure-relief devices shall be removed and their apertures plugged, or shall be rendered inoperative. Rigid plastics IBCs and composite IBCs (plastic inner

receptacles) shall be filled with water at room temperature. The water temperature shall not be below 12 °C and shall be measured and documented before testing.”

9. Add the following new sentence add the end of 4.1.1.3
Additionally, plastics packagings and composite packagings (plastics receptacles) conforming to a design type meeting the requirements of 6.1.5.5.3 as applicable before 1. January 2019 and rigid plastics IBCs and composite IBCs (plastic inner receptacles) conforming to a design type meeting the requirements of 6.5.6.8.2 as applicable before 1 January 2019, may still be used.
